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Electric-field effect in a mixed-valence ion pair Cr3+-Cr2+ in a KZnF3 crystal

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Abstract

The influence of an external axial electric field on the absorption spectrum of a Cr3+-Cr2+ mixed-valence pair center coupled by the double-exchange mechanism in a KZnF3 crystal is investigated. It is shown experimentally that the Cr3+-Cr2+ pair has an electric dipole moment. The migration of an electron is accompanied by local lattice strain. At the minima of the adiabatic potential, the intermediate fluorine atom is displaced from the lattice site. © 1998 American Institute of Physics.

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